Optical coherence tomography findings in ST-elevation acute myocardial infarction in a young woman [20]

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Key words
OCT; Acute coronary syndrome

Avaliação coronária com OCT em mulher jovem admitida por EAM com supradesnivelamento de ST

Palavra chave:
OCT; Síndrome coronária aguda

CASE REPORT

A 27-year-old African woman was admitted to our ICU care with chest pain. ST-elevation was present in leads II, III and aVF and cardiac troponin T was elevated (0.74 ng/ml). Urgent coronary angiography was performed which revealed a 70% proximal lesion in the LAD artery suggestive of intracoronary thrombus (*Figure 1*).

No other lesions were present. Intravascular optical coherence tomography (OCT) was acquired in the LAD, demonstrating the presence of a large thrombus burden at the site of maximum stenosis, with formation of white thrombus distally (*Figures 2 and 3*). Minimal disease was observed along the entire pullback length.

It was decided to administer intracoronary abciximab followed by thrombus aspiration, using an Export, aspiration catheter, based on the above OCT findings. Significant improvement was observed after thrombus aspiration and a 3.5x18 mm Genous®, Bio-engineered Cobalt Chromium stent was implanted. The final angiogram revealed no residual stenosis, TIMI 3 flow and blush 3 (*Figure 4A*). Repeat OCT observation showed excellent apposition of the stent to the vessel wall with no significant residual stenosis (*Figure 4B*).

The patient evolved to Killip class I with no complications recorded. Three-month follow-up was uneventful.

DISCUSSION

OCT is a fiber-optic intravascular imaging system that delivers near-infrared light to tissue and receives reflected light to create 50-mm coronary scans in under three seconds with a resolution of 10-15 μm. Compared to IVUS, OCT provides up to 10 times greater resolution although less capacity for in-depth examination [1]. This property enables precise imaging of the coronary lumen and the coronary wall with excellent resolution of the inti-

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mal layer [2, 3]. It has been used for various applications ranging from pre-PCI lesion assessment in stable coronary artery disease to acute coronary syndromes, in which it can be useful for evaluating the mechanism and deciding on therapeutic strategies. It can also be useful for reviewing stent apposition during the procedure or follow-up after implantation.

In the present case we used OCT to analyze the properties of a culprit coronary lesion in a young woman with a low probability of coronary artery disease. As a result of the high thrombus burden in the presence of highly focal atherosclerotic disease, very well depicted by OCT, a decision was made for intracoronary abciximab followed by thrombus aspiration. These may have contributed to the excellent reperfusion result obtained and also to the selection of a shorter stent. The choice of a Genous®, Bio-engineered Cobalt Chromium stent was due to doubts concerning the patient's access to double antiplatelet therapy.

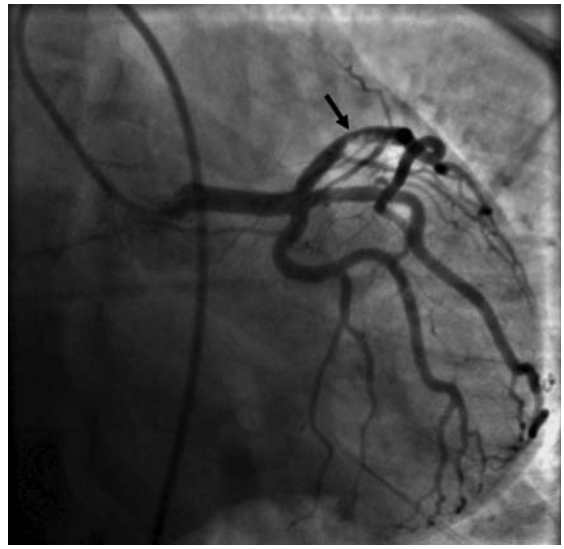

Figure 1. Coronary angiography with a significant lesion in the LAD suggestive of thrombus (arrow).

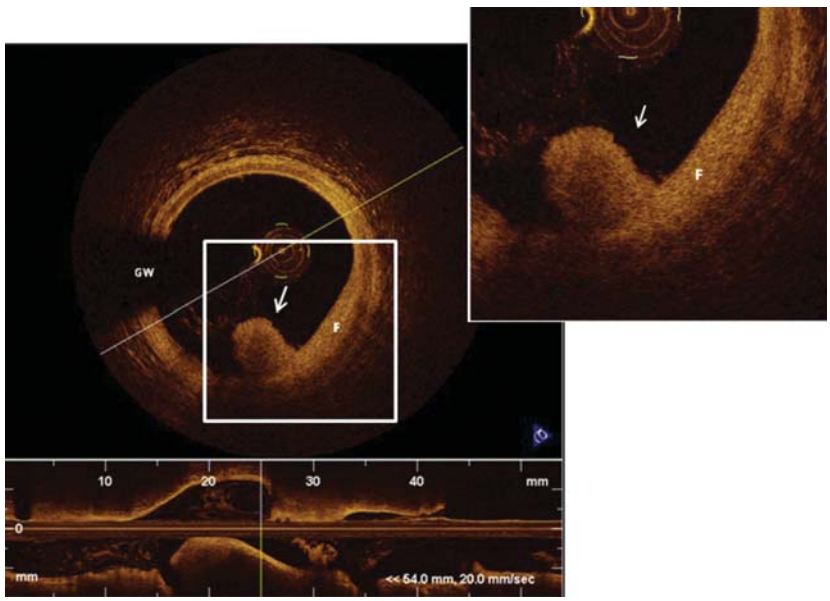

Figure 2. OCT images of the lesion revealing a white thrombus (arrows) partially occluding the LAD and fibrous plaque underlying the thrombus (F). GW: guidewire artifact.

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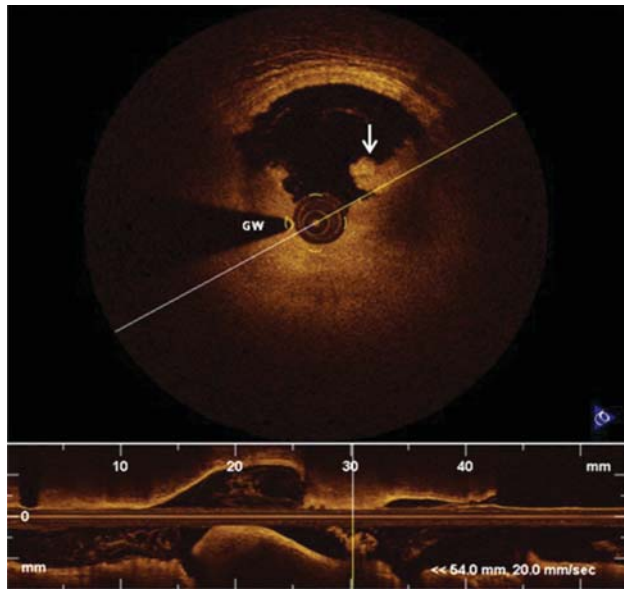

Figure 3. OCT image showing a white thrombus partially occluding the coronary lumen (arrow). GW: guidewire artifact.

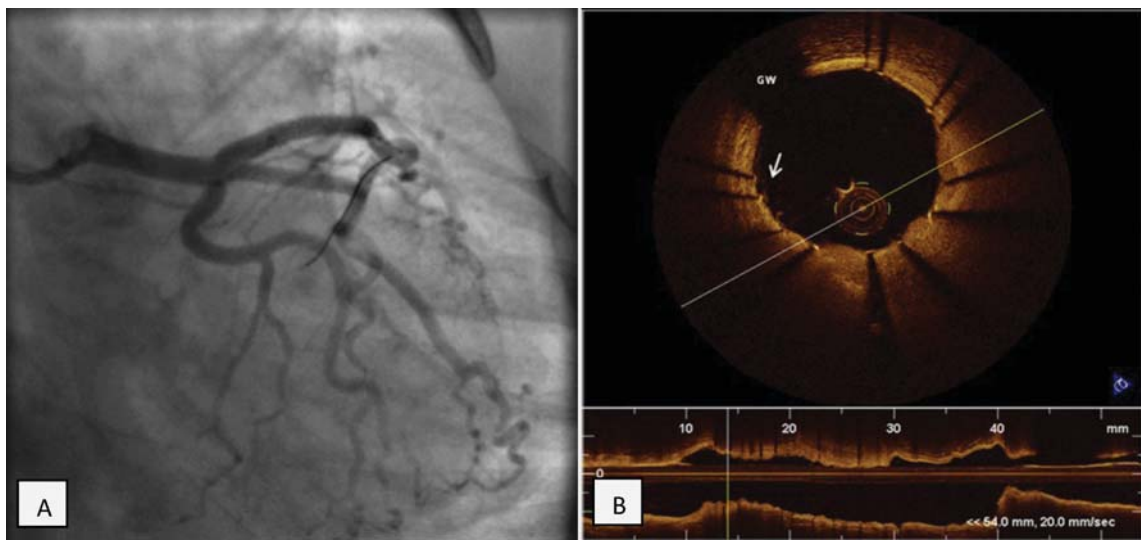

Figure 4. Coronary angiography (A) and OCT image (B) after stent deployment showing a wide patent lumen with no intraluminal thrombus and good stent apposition (arrow). GW: guidewire artifact.

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